

A NEW EUPHORBIA FROM TANZANIA†

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Euphorbia proballyana Leach, sp. nov.

E. quadrangulari Pax affinis sed habitu ramosissimo, statura brevior; podariis latissimis robustioribus haud confluentibus; pedunculo brevior plerumque 3-bracteato; involucro, capsula et semine omnibus minoribus differt; a *E. contorta* Leach habitu ramosissimo, ramis quadrangularibus; foliis minimis; pedunculo plerumque 3-bracteato statim dignoscenda; ad *E. waterbergensem* R. A. Dyer ordinatione inflorescentiae accedit sed habitu ramosiore, ramis quadrangularibus; podariis haud confluentibus; capsula sessili ovoidea; stylis libris e basi; semine verrucoso et characteris ceteris facile distinguenda.

Frutex succulentus, ferociter armatus, dense ramosus, vertice applanatus, ad 1·3 m altus (plerumque minor quam 1 m); ramis ramulisque divaricatis, verticillatim dispositis, segmentorum ex marginibus basi versus producti. *Rami* et *ramuli* robusti, 4-angulati, leviter constricti, saepe spurie articulati; *segmentis* 6—20 cm longis, 1—3 cm crassis (plerumque c. 2 cm); faciebus lateralibus subparallelis, plus minusve planis; *marginibus* sinuato-dentatis, dentibus ad 3 mm altis. *Podaria* plus minusve anguste obovata, parum truncata, late decurrentia, haud confluentia, 8—12 mm longa, 3—4 mm lata, pallide brunnea fusco-marginata mox cinerascens. *Spinae* binae, 8—10 mm longae (segmentorum prope basin breviores) regulariter dispositae 10—14 mm secus angulos distantes, horizontaliter patulae, ad angulum 90°—120° divergentes, cineracae apicem versus nigrescens. *Folia* exigua confestim cadentia; cicatricibus spinula aciculari in quoque latere munitis. *Inflorescentiae* ex axillis tuberculorum secus angulos segmentorum ultimorum exilientes; *cyathia* 3—4 (5) (plerumque 4, perrariter 5); cyathio medio masculino deciduo; cyathiis ceteris bisexualibus, lateraliter et abaxialiter dispositis (cyathio adaxiali adjecto ubi cyathiis 5). *Pedunculus* rudimentalis, plerumque 3-bracteatus; *bracteae* plus minusve ovatae, squamiformes, c. 1 mm longae, 1·5 mm latae; *cymarum rami*, brevissimi, c. 1 mm longi; *bracteae* subquadratae, obtusae vel truncatae, interdum emarginatae, irregulariter denticulatae, c. 1·75 mm longae. *Involucrum* glabrum, crateriforme vel plus minusve obconicum, c. 3 mm longum, 3·5 mm diam. glandulis inclusis

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(perrariter ad 4.5 mm), rubro-purpureum, obscure albescenti-punctatum; *glandulis* 5, anguste transverse oblongo-ellipticis, 2—2.5 mm $\times$ 0.6—0.75 mm (perrariter 2.5 mm $\times$ 1.25 mm), plerumque suberectis (perrariter patulis) leviter concavis vel planis, arcte contiguis, minute tuberculato-punctulatis, obscure rubro-croceis; *lobis* 5, obovatis, irregulariter dentato-fimbriatis purpureis. *Flores masculi* 15—20, 5-fasciculati, bracteolis fimbriatis; bractee fasciculares lobulatae, fimbriatae; *pedicelli* 2.5 mm longi, albi; *filamenta* c. 0.6 mm longa, magentea; *antherae* persicinae, polline aureo. *Ovarium* trigono-oblongum, sessile; *styli* graciles, c. 1.5 mm longi, libri fere e basi, rosei, apicibus emarginatis eburneis. *Capsula* 3-lobata, lobis plus minusve ovoideis, sessilibus, perianthio rudimentali, c. 3.5 mm longa, ad 4 mm diam. rubra, obscure albescenti-punctata, apice fusco-purpurascens. *Semen* ovoideum, c. 1.8 mm $\times$ 1.5 mm, verrucosum, brunneum, verrucis aliquot pallidis.

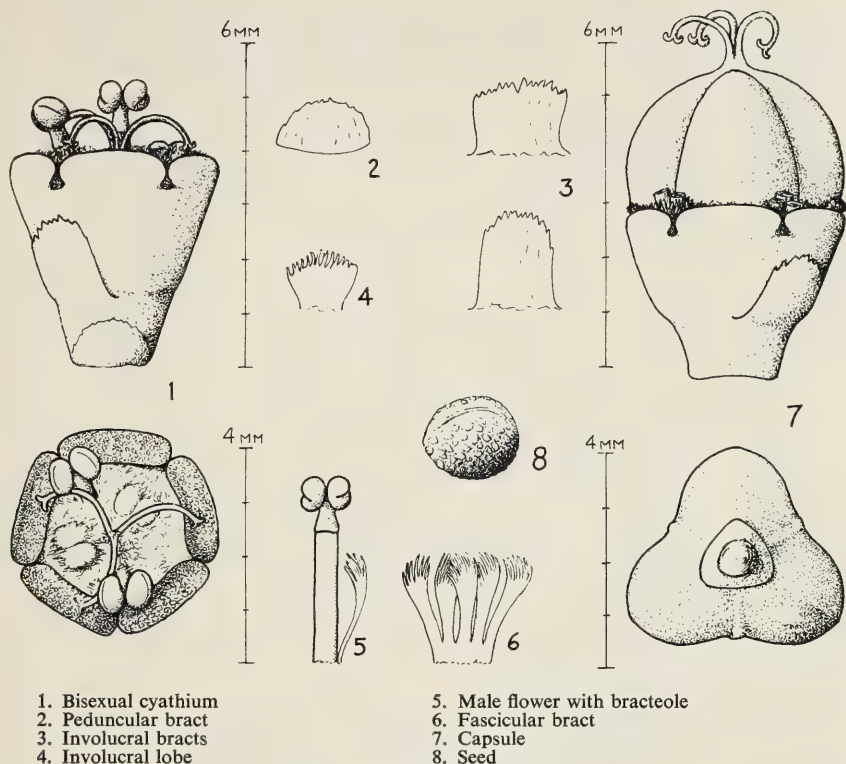
Type: *Leach & Brunton* 10138 (BR; EA; G; K; LISC; PRE, holotype; SRGH; ZSS).

TANZANIA. Central Prov., Kilosa Distr., Great Ruaha Gorge, prope Malolo, cult. Nairobi, *Harris* s.n. in *Bally* E238 (PRE, photo.); $\pm$ 30 mls. W Mikumi, c. 36° 35' E; 7° 30' S, cult. Salisbury & Nelspruit, fl. & fr. *Leach & Brunton* 10138 (BR; EA; G; K; LISC; PRE; SRGH; ZSS); Lukose Riv., st. *Leach & Brunton* 10132 (PRE).

E. proballyana appears to be rather rare, with its known distribution restricted to the Great Ruaha Gorge in Central Tanzania. At the type locality, at an altitude of $\pm$ 2250', the steep stony slopes of the gorge support a typically xerophytic vegetation, with *Adansonia digitata* L., *Euphorbia quadrialata* Pax, *E. sp. cf. E. ussanguensis* N. E. Brown, *E. candelabrum* Trém. ex Kotschy, *Monadenium spinescens* (Pax) Bally, *M. sp. cf. M. echinulatum* Stapf, *Caralluma schweinfurthii* Berger, *Echidnopsis* sp., *Sansevieria* spp. and *Aloe* spp.

It seems probable that the low shrubby plant collected by Goetze (No. 463), in the same gorge in 1899, depicted in Goetze & Engler, *Veget. Deutsch Ostafri.*: Pl. 15 (1902), is identical with our new species. Unfortunately all Goetze's specimens have been destroyed and there is some confusion regarding his three gatherings of *Euphorbia* from this locality (Goetze 463, 464 & 465).

Clearly the name *E. stuhlmannii* Schweinfurth ex Volkens cannot be applied to any of the trees shewn in Plates 13—16 (*tom. cit.*), these being recognisable, in all probability, as *E. quadrialata* and *E. sp. cf. E. ussanguensis*, both mentioned above as known to be associated with the new species. While it might be reasonable, in view of its height and habit, to identify the low shrub (Pl. 15) as *E. stuhlmannii*, it is thought, at least on grounds of locality, to be far more probable that this represents *E. proballyana*.

FIG. 1. *E. proballyana* Leach.

It should, perhaps, be mentioned that Schweinfurth's use of the epithet *stuhlmannii* was predated by Pax' use, in 1897, of the same name for a perennial herb from East Africa, and that Volkens' description seems exactly to match that of *E. heterochroma* Pax.

Another name which had to be considered was that of *E. confertiflora* Volkens, the type of which, *Holst* 8821, has also been destroyed. The description is rather difficult of interpretation but certain characters would seem to preclude the possibility of this plant being identical with the new species; namely: cyathia always 3; involucre plate-shaped on top, 6 mm diam.; ovary with a style pillar on top with the 3 style branches forked in the upper third. Moreover this species also is considered probably to be conspecific with *E. heterochroma* Pax. The only character not in accord with that species is the sessile ovary, but

there are several indications that the cyathia described were at an immature stage, which could easily account for this apparent discrepancy; certainly the distribution given by Volken's coincides with that of *E. heterochroma*.

It is with great pleasure that this most distinctive new species is named for Mr. Peter R. O. Bally, who has contributed so much to our knowledge of the succulent plants of tropical East Africa, and who is so well known, not only for his magnificent monographic work "The genus *Monadenium*", but for numerous publications and particularly for many exquisite drawings and watercolours of succulent plants.

E. proballyana is possibly the most distinct of the large, complex, and often exasperating group of closely related species which includes *E. quadrangularis* Pax and *E. contorta* Leach; from both of these it is easily separated by its more ramose habit, and particularly by its 3-bracteate peduncle, which bears a cyme of 3—5 cyathia; from the former there are additional differences in the lower stature, the more robust broadly decurrent separate spine shields and the smaller involucre, capsule and seed of the new species; while from the latter it may immediately be distinguished by its 4-angled branches and much smaller leaves.

In the arrangement of the inflorescence there is superficially an affinity with *E. waterbergensis* R. A. Dyer, but the relationship is, in fact, not particularly close, as this Transvaal species with its 4—6-angled branches, continuous spine shields, stipitate capsules and smooth seeds, falls into the *E. griseola* Pax complex rather than into the group containing *E. quadrangularis*.



Euphorbia proballyana Leach

Portion of a branch from a plant cultivated at Salisbury, shewing cymes with 4 cyathia.

Plant: a succulent, fiercely armed, densely branched, rather flat-topped compact shrub, up to c. 1.3 m high (usually less than 1 m), up to 1.5 m or more diam. *Branches* and *branchlets* divaricately, more or less verticillately branched and rebranched from the margins from near the base of the segments, robust, 4-angled, (abnormally 5-angled, then spirally twisted), not much constricted, often pseudo-articulated; *segments* 6—20 cm long, 1—3 cm thick (usually c. 2 cm), more or less parallel sided, with the lateral faces more or less flat; with the margins sinuate toothed, with the teeth up to 3 mm high. *Spine shields* narrowly obovate, somewhat truncate at the apex, broadly decurrent, neither confluent nor enclosing the flowering eye, 8—12 mm long, 3—4 mm wide, pale brown with darker margins, soon becoming grey. *Spines* 8—10 mm long (shorter towards the base of the segments), grey, blackish towards the apex, in regularly spaced pairs, 10—14 mm apart along the angles, horizontally spreading, diverging at an angle of 90°—120°. *Leaves* exiguous, almost immediately caducous, with a pair of sharp prickles, 0.5—1 mm long, flanking the obscure leaf scar. *Inflorescence* in solitary axillary cymes along the length of the ultimate segments; *cyathia* 3—4 (usually 4, very rarely 5), with the central primary cyathium male deciduous, and the bisexual cyathia arranged laterally and abaxially (plus an additional adaxial cyathium when 5 are produced). *Peduncle* rudimentary, usually 3-bracteate (probably 4-bracteate when there are 5 cyathia); *bracts* more or less ovate, scale-like, c. 1 mm long, 1.5 mm wide; *cyme branches* very short, c. 1 mm long; *bracts* subquadrate, obtuse or truncate, sometimes emarginate, irregularly denticulate, c. 1.75 mm long. *Involucre* glabrous, cup-shaped or obconic, c. 3 mm long, c. 3.5 mm diam. including the glands (very rarely up to 4.5 mm), purplish red, minutely white dotted; *glands* 5, narrowly transversely oblong-elliptic, 2—2.5 × 0.6—0.75 mm (very rarely 2.5 mm × 1.25 mm), usually suberect (very rarely spreading), slightly concave or flat, closely contiguous, minutely tuberculate punctate, dull reddish orange or dark orange; *lobes* 5, obovate, irregularly dentate fimbriate, purplish red. *Male flowers* 15—20, in 5 fascicles with fimbriate bracteoles; *fascicular bracts* lobulate, fimbriate; *pedicels* 2.5 mm long, whitish; *filaments* c. 0.6 mm long, magenta pink; *anthers* pale peach coloured, with bright yellow pollen. *Ovary* oblong, trigonous, sessile; *ovule* attached under a minutely fringed small hood; *styles* slender, c. 1.5 mm long, free almost or quite to the base, pink, with shortly bifid or emarginate whitish apices. *Capsule* 3-lobed, with the lobes more or less ovoid, c. 3.5 mm long, 3.5—4 mm diam., sessile, seated on a rudimentary rim-like perianth, red, becoming dark purple at the apex, mottled with minute whitish dots. *Seed* ovoid, c. 1.8 mm × 1.5 mm, dark brown, verrucose, with some verrucae pale creamy brown, suture blackish brown.

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